

DRAFT**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION II****DATE: May 8, 1991****SUBJECT: Review of L.E. Carpenter Feasibility Study****TO: Kim O'Connell, Chief**
Northern New Jersey Section II
New Jersey Superfund Branch II**FROM: Frederick J. Luckey, Geologist**
Technical and Pre-Remedial Support Section
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I have developed the following comments on the April 1, 1991 Draft L.E. Carpenter Superfund Site Feasibility Study (FS). The FS contains numerous conclusions and statements of fact which are unsupported and/or differ considerably from those presented in the RI. Please contact me at extension 6786 if I may be of further assistance.

GENERAL COMMENTS

1) It is inappropriate for the PRP contractor to define "operable units" in the FS. This is a regulatory decision which has not been made and/or considered at this time.

2) Certain "conclusions" regarding what contaminants will need to be addressed do not appear to be based on EPA/NJDEP instructions. It would not seem appropriate for the PRP to decide which contaminants need to be addressed.

3) The hydrogeologic framework presented in the FS makes inaccurate and/or unsupported statements (i.e., the river is a losing river/ the drainage ditch acts as a barrier to shallow flow). There is no evidence that the drainage ditch is a hydraulic barrier to groundwater contamination migration. In fact, this statement conflicts with the RI groundwater flow maps. The same is true for the statement that the river is a "losing river".

4) The WHPA computer model results used to develop a groundwater extraction system are completely undocumented and the conclusions/indicated capture zones are not consistent with known groundwater flow patterns. The WHPA was not developed to be used to plan extraction well systems. The WHPA model was designed to help community water well owners plan/design well head protection areas. The model results presented in the RI should be completely deleted. The completion of the FS should not be delayed waiting for a revised model to be completed. A better groundwater extraction system/model can be designed as



part of the Remedial Design phase.

5) The lateral extent of the floating product has not been defined, particularly in the western part of the site. The current FS ignores the great uncertainty that exists regarding the extent of the floating product at the site. The success of the proposed remedies for floating product contamination cannot be fully evaluated if the extent of the problem may not be fully addressed.

6) Significant QA/QC sampling problems which seriously limit the usefulness of some of the sampling data as not been presented in the RI/FS. For example, the text states that no VOCs have been detected in the Rockaway River. However, the text does not state that VOC holding times were exceeded for all river water samples. All of the inorganic sampling results are highly questionable considering that the labs do not even know the day that the inorganic analyses were run! This means we have no way of knowing what instrument they were analyzed on, if the instrument passed standard calibration tests for that day and other factors that may impact the reliability of the data. This lack of records also raises serious questions concerning chain of custody procedures.

7) The location and number of residential/public supply wells has not been defined. The PRP assumes that many wells for which it has not collected specific information are either no longer in existence and/or are no longer being used. The conclusion that no wells are and/or will be impacted by the site-related groundwater contamination simply cannot be substantiated by the inadequate water well survey that is presented in this report.

8) Subsurface grouting, certain types of excavations and sheet piling have been eliminated for a variety of reasons such as high water table, variable permeability, and subsurface boulders. In general, there is no reason why any of these remedial alternatives could not be implemented at the site. The RI cross-sections show subsurface boulders to be a problem in only a relatively small area. The permeabilities do not vary significantly enough to be considered a problem and standard engineering equipment and practices can easily deal with excavations in areas with shallow water tables.

SPECIFIC COMMENTS

1) Page 1-1, Second Sentence - This sentence does not fully state the requirements of an EPA-selected remedy. I recommend that this sentence either be deleted or else expanded to cite all of the criteria which are used in selecting a remedy.

2) Page 1-3/Figure 1-1 - The site location should be clearly marked. Someone unfamiliar with the site would not be able to locate it on this map.

3) Page 1-5/Figure 1-3 - There seems to be a problem with the demarcation of the flood plain demarcation. The map shows the highest and lowest portions of the site as being within the 100 year flood plain. However, the area in between the high and low ground is shown as not being located within the flood plain. This would seem to be physically impossible since water tends to flow down hill (i.e, from Bldg 17 towards Bldg 14). This map needs to be reconsidered.

4) Page 1-6, Second Paragraph - The hydraulic conductivity value is incorrectly notated. It should be written as 1.8×10^{-2} cm/sec. Hydraulic conductivity value units should be kept consistent throughout the report. The computer "model" discussion gives hydraulic conductivity values in terms of gal/day/ft.sq. Units should be revised so that the same units are used throughout the report.

5) Pages 1-6 & 1-7, Existing Water Supply Wells - This report does not provide a reliable accounting of existing water supply wells in the vicinity of the site. The use of phrases such as "may be out of use", "probably not in use", "is reasonable to assume they are not in use", "appear to be upgradient of the site" suggest that the authors of this report really do not know what the status is of the majority of these wells. I recommend that a table of water supply wells be developed to allow a more systematic analysis of this situation. The table should indicate locations, distance from the site, available sampling results, dates of sampling, parameters included in sampling, detection limits/analytical methods used for sampling rounds and the agency/party responsible for sampling. A map should be developed to show the exact location of these water supply wells relative to the site. An attempt should be made to determine the status of residential wells at residences that have been connected to public water. The report should not "assume" that these wells are not used as a source of potable water.

6) Page 1-8, Second Paragraph, First Sentence - Was the mine located on the site or just in the vicinity? Is there any data/reports to support this statement? If so, references should be provided.

7) Page 1-8, Last Paragraph - The nature of the site-related contamination that was addressed by the first ACO should be described.

8) Page 1-9, First Full Paragraph - What is meant by the phrase "the apparent satisfaction of NJDEP"? A reference should be provided to a NJDEP document and/or memo which documents the

NJDEP's position. This statement should be deleted if none can be provided. What criteria was used to determine that the all contaminated subsurface materials had been removed?

9) Page 1-9, Third Paragraph, Last Three Sentences - Statements to the effect that the site would not be listed on the NPL if it was ranked today should be deleted from this report. This is pure conjecture on the part of the PRP. For one thing, the HRS system has been revised since the site was listed. The PRP cannot know how the site would rank unless the new ranking system has been applied to the site. Secondly, they have not demonstrated that they have an accurate knowledge of the number and/or locations of groundwater wells in this area. The text states that the two Wharton supply wells are no longer in use but previous pages state that there were five Wharton supply wells. The very last sentence is a bit puzzling. It is stated earlier that the site would no longer rank on the NPL but here in the last sentence it states that it was primarily the presence of floating product which caused the site to be ranked on the NPL.

10) Page 1-11, Fourth Paragraph - The last sentence should be deleted. The power lines cannot be suggested to be the source of PCB contamination. What is the source of the PCB's on-site?

11) Page 1-11, Last Full Sentence - The text does not accurately state the extent of floating product. Significant amounts of floating product have been detected over 500 feet west of building 13. It has not been determined if the layer of floating product detected west of building 9 is part of the same layer that is detected at building 13. No explanation has been provided as to where the floating product present near building 9 could have come from. There could be unrecognized source areas/leaking underground storage tanks in this area.

12) Page 1-12, First Paragraph, Last Sentence - The text should state which inorganic parameters were detected in excess of state and federal MCLs. It would appear by the wording of this sentence that MCLs were exceeded but the authors do not want to discuss this issue.

13) Page 1-12, Second Paragraph, Seventh Sentence - This sentence should be deleted. There is no evidence that a drainage ditch is going to serve as a "hydraulic barrier" to the migration of shallow groundwater contamination. The following statement, that groundwater flows from MW-13 to the ditch, should also be deleted. Again, there is no evidence whatsoever to support these statements.

14) Page 1-12, Second Paragraph, Second Half of Paragraph, MW-13 - What contaminants were detected in MW-13 and how many of these were also detected on-site? If MW-13 contaminants are also found on-site there should be little question that the site is

responsible for this contamination. The groundwater flow map that is presented in the RI shows MW-13 to be directly downgradient of the site. The last two sentences in this paragraph should be deleted. These statements are classic examples of how people try to explain away the facts.

15) Page 1-12, Last Paragraph - The statement that VOCs were not detected in the Rockaway River should be qualified with the fact that most of the surface water samples did not pass VOC QA/QC due to holding time exceedances.

16) Page 1-24, Second Paragraph, Third Sentence - The statement that the Rockaway River is a losing stream should be deleted. There is no evidence to support this and it conflicts with groundwater flow maps presented in the RI.

17) Page 2-1, Second Paragraph - I question the appropriateness of providing detail on applying for an ARAR waiver at this point in the process. This is the first time I have seen this type of discussion presented in a FS.

18) Page 2-3, Last Paragraph, Last Sentence - The PRP has not demonstrated that they know the number and/or locations of groundwater supply wells in the area. It is therefore difficult for them to state that no drinking water sources are being impacted by the site.

19) Page 2-9, Second Paragraph - The report should acknowledge that NJDEP cleanup levels for soils are in the process of being promulgated and will be enforceable, contrary to what is indicated on table 2-4. I do not think that the NJDEP soil clean up levels shown on table 2-4 are exactly the same as those that are being promulgated. The ROD for this site will have to consider these new cleanup levels if it is completed and signed after these levels have been promulgated.

20) Page 2-12, First Paragraph - Federal groundwater MCLs should be added to the list of applicable ARARs for the site. Aren't there certain ARARs regarding air quality? The air surveys that have been conducted to date appear to have only been performed during cold weather when levels of volatiles can be expected to be at a minimum. Elevated levels of benzene in air has been detected at this site.

21) Page 4-9, First Paragraph - The difficulty in dewatering areas of the site appears to be greatly overstated. Soil can be easily excavated several feet below the water table given the right equipment. Cut off walls do not need to extend all the way to bedrock in order to significantly reduce inflow to the excavation area. The wording of this entire section appears to be designed to discourage remedial options that require excavation.

22) Page 4-9, Second Paragraph - This paragraph should be deleted. This is the first time I have ever read that improper compaction of sand and gravel is going to somehow have a deleterious effect on the environment. I really don't see how this could have this effect. Again, the intent of this section appears to be to discourage any remedial activities that involve excavation.

23) Page 4-10, Top of Page - The statement that sheet piling cannot be installed because of "boulder-filled soil" does not seem to be well supported by the hydrogeologic framework that is presented in the RI. The geologic cross-sections show that the majority of the site is underlain by sand and gravel. The text should be modified as required.

24) Page 4-10, Second Paragraph, Last Sentence - This sentence should be deleted. There are no site conditions that preclude excavating large areas at the site except for perhaps the area immediately along the river.

25) Page 4-29, Last Sentence - The provision of bottled water may be a necessary component of supplying an alternate water supply if residential well contamination was identified. Water line hook-ups could not be installed over night. It may take several months to effect the hook-ups.

26) Page 4-31, First Paragraph, Last Sentence - In addition to containing the migration of floating product, "hanging walls" can greatly reduce the amount of groundwater that would have to be pumped to control groundwater migration away from the site. This is because the horizontal hydraulic conductivity is generally 10 times that of the vertical conductivity of aquifer materials in unconsolidated deposits.

27) Page 4-32, Sheet Piling - The RI geologic cross-sections do not indicate that boulders are a serious concern over most of the site. Therefore, sheet piling would be useable in many if not most areas of the site.

28) Page 4-33, Last Sentence - Floating product thicknesses can vary for a number of reasons. Just because the floating product thickness at MW-7 was measured as being less than .1 inch does not mean that its thickness will not increase over time due to continued lateral flow of floating product.

29) Page 4-34 - The likelihood of success of this program cannot be evaluated until the total lateral extent of floating product has been determined. For example, the lateral extent of floating product between MW-1 and Bldg 13 needs to be determined.

30) Page 4-38, Second Full Paragraph - The text should specify what soil conditions would make the use of eight foot deep

trenches impractical.

31) Page 5-6, Second to Last Paragraph - The WHPA computer model that was used to develop the groundwater extraction system that is presented in this report was not designed for this purpose. This model was developed as an aid to local planners in developing well head protection areas. Furthermore, the capture zones that are indicated on Figure 5-2 simply do not make sense. Capture zones do not extend away from a well perpendicular to the direction of groundwater flow.

32) First Full Paragraph - The first sentence should be deleted, everyone probably realizes that slurry walls are not extraction wells. The third sentence suggests that the authors do not acknowledge that a slurry wall does not have to extend all the way to bedrock to be effective. A hanging slurry wall, one that is not keyed into a confining unit, would significantly reduce the horizontal flow of clean water into the site from the river and the surrounding areas. This could significantly reduce the amount of water that would need to be pumped to remediate the plume and reduce the amount of water that would need to be discharges/reinjected.

33) Some discussion should be provided as to the uncertainties regarding the levels of other VOCs in groundwater due to the masking effect of the extremely high levels of xylene and ethylbenzene. Other types of VOCs may be present at levels above state/federal MCLs but may have gone undetected.

34) Page 6-10, Institutional Controls/Figure 6-1 - The area that is designated for institutional controls appears to ignore areas in the western portion of the site where floating product and heavily contaminated soils have been found. The purpose of this is supposedly to alert prospective buyers of such problems. Figure 6-1 does not provide an accurate representation of those areas where subsurface contamination is a concern. This goes back to the basic question regarding the western extent of floating product at the site. It is has not been determined.

35) Page 6-29, First Paragraph - The suggestion that the reinjected groundwater will all be captured by the extraction wells should be removed. It would be impossible for the reinjected water to all be contained by extraction well pumping unless a slurry wall was used to restrict the horizontal flow of off-site clean water to the extraction wells.